

I CLAIM:

1. A luminaire comprising:

a light source;

at least one optical light pipe having two ends, one said end coupled to said light source; and

at least one light emitting panel coupled to the other said end of said light pipe, said light emitting panel comprising:

a tapered light-injection area having a narrow end and a wide end, said narrow end coupled to said light pipe,

a light-emitting zone having a proximal end and a distal end, said proximal end joined to said wide end, and

at least one irregular tetrahedrally-shaped light guide embedded in said light-emitting zone, said light guide extending continuously from said proximal end to said distal end and forming a groove that increases in surface area from said proximal end to said distal end.

2. The luminaire of claim 1 further comprising multiple said optical light pipes connected to respective multiple said light emitting panels.

3. The luminaire of claim 1 comprising multiple embedded irregular tetrahedrally-shaped light guides embedded in said light-emitting zone, said multiple light guides arranged in parallel with respect to each other.

4. The luminaire of claim 1 wherein said light-emitting zone comprises a mirror layer, a

silicone layer, and a base layer, said mirror layer interfacing said silicone layer and said silicone layer interfacing said base layer, said light guide being cast or machined into said base layer.

5. The luminaire of claim 4 wherein said base layer comprises plastic or glass.

6. The luminaire of claim 5 wherein said plastic or glass has a transmittance of at least 91% and a refractive index of between 1.49 and 1.51.

7. The luminaire of claim 1 wherein said light guide has two interior surfaces treated with a reflective material.

8. The luminaire of claim 7 wherein said reflective material is a highly reflective paint.

9. The luminaire of claim 1 wherein said light guide has a surface that is abraded, etched, chemically treated, silk screened, or laminated.

10. The luminaire of claim 1 wherein said tapered light-injection area is bent over a radius of about 10 times one-half its thickness.

11. A method of illuminating an area, said method comprising:

generating a light flux from a light source;

transporting said light flux via an optical light medium to a tapered enclosure of a light-emitting panel; and

propagating said light flux from said tapered enclosure through a tetrahedrally-shaped groove

embedded in said light-emitting panel, said tetrahedrally-shaped groove having a surface area that increases in the direction of said propagating.

12. The method of claim 11 further comprising propagating said light flux from said tapered enclosure through multiple tetrahedrally-shaped grooves embedded in said light-emitting panel, each said tetrahedrally-shaped groove having a surface area that increases in the direction of said propagating.

13. The method of claim 11 further comprising propagating said light flux from said tapered enclosure through multiple tetrahedrally-shaped grooves embedded in said light-emitting panel, said multiple grooves embedded in parallel with respect to each other, each said tetrahedrally-shaped groove having a surface area that increases in the direction of said propagating.

14. The method of claim 11 wherein prior to said propagating said method further comprises casting or machining said tetrahedrally-shaped groove in a base layer of said light-emitting panel.

15. The method of claim 11 wherein prior to said propagating said method further comprises casting or machining said tetrahedrally-shaped groove in a plastic or glass base layer of said light-emitting panel.

16. The method of claim 11 wherein prior to said propagating said method further comprises casting or machining said tetrahedrally-shaped groove in a plastic or glass base layer of said light-emitting

panel, said plastic or glass layer having a transmittance of at least 91% and a refractive index of between 1.49 and 1.51.

17. The method of claim 11 wherein prior to said propagating said method further comprises treating two interior surfaces of said tetrahedrally-shaped groove with a reflective material.

18. The method of claim 17 wherein said treating comprises treating two interior surfaces of said tetrahedrally-shaped groove with a highly reflective paint.

19. The method of claim 11 wherein prior to said propagating said method further comprises abrading, etching, chemically treating, silk screening, or laminating a surface of said tetrahedrally-shaped groove.

20. The method of claim 11 wherein prior to said transporting said method further comprises bending said tapered area over a radius of about 10 times one-half its thickness.